
V. REMARKS

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as anticipated by Minkus et al. (U.S. Patent No. 5,460,617). The rejection is respectfully traversed.

Claim 1 is directed to a plunger for a syringe used for supporting and moving a gasket inserted in a syringe barrel and includes a screw portion, a flange, a first ring member, a second ring member, a rib and a plurality of main members. Claim 1 recites that the screw portion is formed at a tip thereof for mounting the gasket and the flange is provided at an end of the plunger. Claim 1 also recites that the first ring member and the second ring member are arranged at an interval from each other at a rear of the screw portion around a center axis of the plunger, the rib is provided between the first ring member and the flange and the plurality of vane members are provided between the first and second ring members and arranged radially from the center axis of the plunger. Further, claim 1 recites that outer diameters of the first and second in ring members and the plurality of vane members are equal to or slightly smaller than an inner diameter of the syringe barrel.

In Minkus, a plunger 12 has a piston 26 mounted in advance at a tip thereof. Therefore, Minkus does not assume such an object of this patent application to mount a gasket on a screw portion at a tip of a plunger in a proper posture in a state in which a center axis of a syringe barrel and a center axis of the plunger are made to coincide with each other.

Moreover, Minkus fails to describe a pair of ring members and also fails to describe a plurality of vane members provided between first and second ring members.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of cl and the aim 1. Specifically, the applied art fails to teach a pair of ring members and a plurality of vane members provided between first and second ring members. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claim 2 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that claim 2 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by Grimard (U.S. Patent No. 5,752,940). The rejection is respectfully traversed.

An O ring 82 described in FIG. 10 of Grimard is intended for sealing the inside of a chamber in a syringe, and cannot exhibit the function of the ring members 12, 13 and the vane members 14 according to the claimed invention, namely, the function of facilitating making the center axis of the syringe barrel and the center axis of the plunger coincide with each other.

Further, the O ring 82 of Grimard is disposed substantially at the center of a plunger rod 78. Such an O ring 82 cannot be used as a gripping ring member 17 of this patent application.

Moreover, Grimard fails to describe first and second ring members and fails to describe plural vane members provided between the ring members.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of claim 1. Specifically, the applied art fails to teach first and second ring members and plural vane members provided between the ring members. As a result, in our opinion, claim 1 is allowable over the applied art.

Claims 2 and 4 depend from claim 1 and include all of the features of claim 1. Thus, we propose to argue that the dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

Claim 5 is canceled and therefore the rejection as applied thereto is now moot.

Withdrawal of the rejection is respectfully requested.

Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 102(e) as anticipated by Hirshman (U.S. Patent No. 6,042,565). The rejection is respectfully traversed.

The structure in Hirshman is such that a contact surface 35 is fitted into a tip (base 40) of a plunger extension 100. This means that, in Hirshman, the contact surface 35 is mounted on the tip (base 40) of the plunger extension 100 in advance (before the plunger extension 100 is inserted into a syringe 10), and thereafter, the plunger extension 100 is inserted into the syringe 10.

On the other hand, the background of the invention of this patent application, as described in its specification, is such that it is not easy to make a center axis of a

syringe barrel and a center axis of a plunger coincide with each other when a prefilled syringe is used. And, if they are in a skewed posture, a movable stopper does not slide stably or fluid leakage occurs from a clearance between a gasket and the syringe barrel when the contents are pushed out by pressing the plunger. Especially, in using an injection solution such as a contrast medium that is high in viscosity and whose loading amount is large, a syringe body becomes large in size, which requires a strong force for pushing out the plunger (injection force), and therefore, on clinical sites, there exists a strong demand for the solution of such a problem.

Therefore, it is an object of this patent application to mount a gasket on a screw portion at a tip of a plunger in a state in which a center axis of a syringe barrel and a center axis of the plunger are easily made to coincide with each other. Hirshman does not assume such an object at all.

Further, Hirshman does not describe such a requirement that the outer diameters of the ring members and the vane members are equal to or slightly smaller than the inner diameter of the syringe barrel.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of claim 1. Specifically, the applied art fails to teach the outer diameters of the ring members and the vane members are equal to or slightly smaller than the inner diameter of the syringe barrel. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claims 2 and 4 depend from claim 1 and include all of the features of claim 1. Thus, we propose to argue that the dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

Claim 5 is canceled and therefore the rejection as applied thereto is now moot.

Withdrawal of the rejection is respectfully requested.

Claim 3 is rejected under 35 U.S.C. 102 (b) for 102 (e) as anticipated by or, in the alternative, under 35 U.S.C. 103 (a) as obvious over that, Grimard or Hirschman. The rejection is respectfully traversed.

Claim 3 depends from claim 1 and includes all of the features of claim 1. Thus, we propose to argue that claim 3 is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

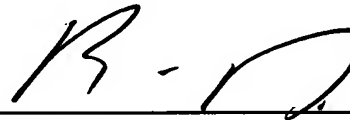
In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,

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